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# THE FOREST WORKER

September, 1926.

FOREST SERVICE  
UNITED STATES DEPARTMENT OF AGRICULTURE  
WASHINGTON D.C.



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DIVISION OF INVESTIGATION



# THE FOREST WORKER

September, 1926

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## ANNOUNCEMENTS

### Double Meeting at Ithaca

The twenty-first annual meeting of the Empire State Forest Products Association and the second New York State wood-utilization conference will be combined at Ithaca, N. Y., on October 7. The meetings will be held under the auspices of the department of forestry of Cornell University. The program, as tentatively arranged, includes trips to the university woodlots and plantations and to three State parks, and open forum discussions of the farm woodlot as a potential producer of timber. Inquiries in regard to the meeting should be directed to A. B. Recknagel, Secretary, Empire State Forest Products Association, 562 Broadway, Albany.

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### Small Sawmill Demonstration at Syracuse

The New York State College of Forestry, Syracuse, N. Y., invites the public to its second annual sawmill demonstration, October 14 and 15. How to obtain the maximum amount of the higher grades of lumber from the different types of logs and how to care for and dispose of such lumber will be the subject of conference and demonstration. Afterwards an effort will be made to organize a permanent state-wide association of small timberland owners and operators for the purpose of obtaining better prices for the products of the small woodlot.

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### Portable Sawmill Demonstration at Pennsylvania State

A portable sawmill demonstration is to be held at Pennsylvania State College, October 25-28, for which several new features are planned. In addition to the electric motor and gasoline power used in previous exhibits, a steam unit and one or more types of so-called industrial units will be used. As in previous years sawing for grade will be emphasized, and instruction will be given in filing and fitting saws and in estimating woodlot timber.

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Pennsylvania Conservation Week at the Sesquicentennial

The week September 27-October 2 has been designated by the Pennsylvania Sesquicentennial Commission as Conservation Week, and will be marked by special observances in the Pennsylvania Building, Sesquicentennial Grounds, Philadelphia. R. Y. Stuart, secretary of the Pennsylvania Department of Forests and Waters, announces that a special conservation program will be carried out on each day of the week and that interest will be focused as much as possible on the department's natural resources exhibit.

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A reprint of Timber Growing and Logging Practice in the California Pine Region (U. S. Department of Agriculture Bulletin 1402) is now ready for distribution. Those desiring copies can obtain them by writing to the U. S. Forest Service, Washington, D. C.

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## STATE FORESTRY DEPARTMENTS AND ORGANIZATIONS

### Forestry Is On Its Way to Florida

An effort to save the forest wealth of Florida is being made by the Florida Forestry Association with the help of the U. S. Forest Service. Harry Lee Baker of the Forest Service this spring made an investigation of forestry conditions in the State, working first with the Florida Beautification and Forestry Society and later with the Florida Forestry Association. The results of this study, which was made under the provisions of Section 1 of the Clarke-McNary Act, will be used by the association in preparing to recommend a State forestry policy to the legislature when it convenes in April, 1927.

Florida has the climate and the soil for marvelous timber production, and its pines reproduce abundantly. Practically all cut-over areas in the State that have been kept absolutely free from fire are fully stocked. But areas that have been so protected are extremely rare. Of the 17,600,000 acres included in the State's pine region, it is estimated, at least 75 per cent is burned over every year, and not more than 10 per cent ever escapes fire for three years in succession. Soil injury from fires has caused much of the former longleaf and slash pine area to revert to an undesirable forest type consisting of such species as scrub oak and sand pine. It is estimated that there are 883,000 acres of "scrub" lands in the State, a large portion of them in the ridge section. Largely because of soil impoverishment by fire more than 5,000,000 acres have reached a state of devastation that classes them as barren land. On the 12,000,000 acres of second-growth pine forest only one tree is growing where three should grow, and in consequence of repeated burning the young trees are retarded in growth and weakened by fire scars.

Industries dependent on the forest rank among the most important in Florida. Until a few years ago the lumber industry led all others in the State, and it continues to mean more in dollars and cents than any other manufacturing industry. The 1925 production was worth \$45,000,000, which is 21 per cent of the value of all products manufactured in the State during that year. In 1923, the latest year for which employment figures are available, this industry employed 22,253 persons and paid more than \$18,000,000 for salaries, wages, and contracted work.

For 15 years, since the naval stores industry was virtually extinguished in the Carolinas, Florida has led the Union in the production of turpentine and rosin. Its crude gum distillation plants number 429.



Florida's output of naval stores in 1910 exceeded that of all the other States combined, and in 1925 constituted 36 per cent of the Nation's production. In the latter year the naval stores operators of the State employed more than 14,000 people, paying salaries and wages aggregating \$10,000,000.

The demand for wood for boxes in which to ship Florida oranges and grapefruit has quadrupled since 1905. At least 16,000,000 boxes are now used for this purpose each year. The shipping of a year's crop of tomatoes, celery, lettuce, and other vegetables requires 8,000,000 hampers and 12,000,000 crates. So Florida fruit growers and truck gardeners are using 160,000,000 board feet of lumber a year.

Thirteen other industries and trades of importance in Florida depend entirely upon the forest. Planing mills, separate from lumber mills, annually manufacture products worth \$7,700,000. The business of producing railroad ties, posts, poles, piling, and timbers for use on farms amounts in a year to more than \$9,000,000. The wood-distillation, wood-preservation, shipbuilding, cooperage, furniture, and wagon-works industries are worth more than \$4,000,000 a year. There are 400 lumber yards in operation and 11,000 carpenters and cabinet makers at work in the State. The grand total of 16 forest-dependent industries and trades accounts for the subsistence of 23 per cent of the State's population.

With all its natural advantages for timber growing, Florida hardly more than meets its own lumber requirements, normally about  $1\frac{1}{4}$  billion feet a year. If the State continues to develop its industries and to neglect forest protection as at present, it may reasonably be predicted, its consumption of lumber will increase annually by an average of 5 per cent of what it is now and its lumber production will recede in about the same proportion.

Several civic and commercial organizations of Florida have shown interest in forestry matters, notably the Florida Federation of Women's Clubs, the Florida Chamber of Commerce, the stockmen's association, the realty board, and the Hoo Hoo Club. The Pine Institute of America is impressing the people of the State with the need for safeguarding their naval stores industry through better turpentine methods and forest fire protection. The forestry investigation in which the State and the Federal Government recently cooperated disclosed a live interest in the subject among the people of the State. J. G. Peters, who directs the State cooperative work of the U. S. Forest Service, in a recent visit to Florida during which he gave a forestry talk by radio from Jacksonville met with fine response from representative citizens and from the press. Good hope is entertained by the friends of forestry that Florida may soon join the ranks of the 40 States that have made forest protection a special function of State government.



## Important Changes in Louisiana Conservation Law

The General Forest Conservation Law of Louisiana has been changed in important particulars through Act No. 153, signed by Governor Fuqua on July 8. It now requires that lumber or naval stores operators leave at least two unbled seed trees per acre for every 10-acre plot, the act defining "seed tree" as "a healthy tree of the variety being cut or bled not less than 10 inches in diameter,  $4\frac{1}{2}$  feet from the ground." The law formerly required that an average of one tree per acre be left for every section of land; but this requirement was ineffective because it was made inapplicable to land which the owner should declare to be susceptible of agricultural use and intended for sale or development as such. The second change in the law provides for an additional member on the general forestry governing board, to be appointed by the governor from the membership of the Louisiana State Park Association. The board at present consists of the commissioner of conservation and four appointive members including two timber owners, one farm land owner interested in farm land reforestation, and the professor of forestry in the Louisiana State University. The third change permits the purchase of land for State forests at an average price per acre not exceeding \$10, which formerly was the maximum price per acre allowed, and the expenditure of \$1,000 for lands for a State nursery.

During its recent session the Louisiana Legislature adopted a joint resolution (Act No. 162) proposing an amendment to the constitution to fix the limit of the severance tax in reforestation contracts; to grant a portion of this tax to the parishes; and to validate and ratify other reforestation legislation passed at the 1926 session. This amendment would authorize the legislature to fix the limit of the severance tax that might be levied on forest products grown under reforestation contracts, and would grant three-fourths of the severance tax to the parish in which the operation took place. It would also extend the maximum contract period from 40 to 50 years. This amendment is to be submitted to the voters of the State in the elections of November, 1926. The present law does not provide for any limitation on the severance tax or for payment of a portion of it to the parish. Consequently, State Forester Hine says, police juries have been reluctant to grant reforestation contracts.

Act No. 120, which would be validated and ratified by the adoption of the proposed constitutional amendment, would for the present fix the severance tax on forest products grown under reforestation contracts at 6 per cent.

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The annual appropriation of the Division of Forestry, Louisiana Department of Conservation, for the fiscal year 1927 is \$80,000 as compared with \$60,000 for the fiscal year 1926.

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## The Second Year of State Forestry in Alabama

The second annual report of the Alabama Commission of Forestry, for the calendar year 1925, indicates that forest fires of that year burned over 16 per cent of the State's forest land. This is less than half the 1924 figure. At the close of the year the commission had given concrete assistance in timber-growing projects in nine counties involving 43,959 acres. Auxiliary State forests aggregating 48,743 acres had been established according to the provision of the act of 1923 by which landowners under contract with the State to devote their land to reforestation are relieved of the annual ad valorem taxes on the growing timber.

The educational work of the year included the distribution of thousands of pieces of printed matter, and the preparation and distribution of 38 press items; the posting by rangers of more than 7,600 forestry signs and notices; and 37 showings of forestry films, mostly in the schools. Rangers made 387 visits to schools and interviewed 13,973 citizens on the subject of forestry and fire protection. The railroad companies operating lines within the State were asked to cooperate in the use of signs and posters, and in practically every case did so.

The event of the year which the commission records as the most significant advance in forestry informational work in Alabama since its organization was the decision by the State board of education that a course in conservation, "with special reference to forestry," should be included in the regular course of study of the elementary schools.

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A new Clarke-McNary inspection district has been approved. It includes Alabama, Mississippi, Louisiana, Texas, Oklahoma, and Missouri. Alve L. Richey, supervisor of the Superior National Forest, has been appointed inspector, with headquarters at New Orleans.

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The forest nursery of the Iowa State Agricultural College, from which planting stock is distributed as part of a Clarke-McNary project, is being extended by 10 acres. An overhead watering system is being installed. At the forest nursery at Trout Lake, Wis., the Wisconsin Conservation Commission is having an additional 10 acres cleared and plowed in order to meet the increased demand for planting stock produced under the cooperative Clarke-McNary project.

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Hawaii has applied for Federal cooperation in the distribution of forest planting stock under the Clarke-McNary law.

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## Program of Pennsylvania's State Forest Nurseries

The annual output of planting stock from the State forest nurseries of Pennsylvania has reached the 10,000,000 mark, but still falls short of the demand. A new nursery, known as the Milton Forest Tree Nursery, is being developed on a 100-acre farm on the Susquehanna Trail about two miles south of Lewisburg, Pa., which was purchased by the State last fall, and the State bureau of forest extension hopes by 1930 to be producing 20,000,000 instead of 10,000,000 trees a year. The species chosen, the number of trees of each species to be produced each year, and the annual seed requirements are as follows:

<u>Species</u>	<u>Number of trees to be produced</u>	<u>Seeds required</u>
White pine	4,500,000	900 pounds
Red pine	4,500,000	375 "
Pitch pine	2,700,000	240 "
Norway spruce	1,800,000	150 "
Japanese larch	1,600,000	360 "
Other conifers	2,700,000	250 "
Red oak	700,000	350 bushels
White ash	600,000	300 pounds
Black locust	300,000	120 "
Black walnut	100,000	500 bushels
Other hardwoods	<u>300,000</u>	125 pounds
	20,000,000	

If poor seed years, labor troubles, or weather conditions make it impossible to obtain the desired species, substitutes will be chosen from among Scotch pine, Japanese red pine, Austrian pine, white spruce, balsam fir, European larch, tulip poplar, and shellbark hickory.

White pine, red pine, and Norway spruce will be shipped from the nurseries when 3 years old; pitch pine, Scotch pine, Austrian pine, and larch when 2 years old; and hardwoods when 1 and 2 years old. For planting on areas that are covered with a heavy sod or a dense growth of weeds it is desired to grow from 500,000 to 1,000,000 2-1 and 2-2 transplants of white pine, red pine, and Norway spruce.

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The capacity of the Louisiana State forest nursery has been enlarged from 1,000,000 to 4,000,000 trees. In this nursery, which is located at Woodruff, La., both longleaf and shortleaf pines and various native hardwood seedlings are being produced for distribution to farmers and other landholders of the State.

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### New Municipal Forest Planting in New York State

An unusual number of municipal forests will be started in New York this fall, the State conservation commission predicts on the basis of orders received for planting stock. Before the end of July the commission had received orders from 9 municipalities for a total of 301,000 trees. This demonstrates on a smaller scale the new interest in forest planting shown by the State's municipalities this spring, when they more than doubled their plantings of the spring of 1925.

The 98 fall orders from planters of all types granted by the commission on or before July 15 aggregated 230,000 trees. Fall shipments from the State nurseries are expected to exceed greatly those of any previous year. The trees available for fall planting include several varieties that the commission could not furnish this spring. The complete list is as follows: White pine transplants and seedlings, Norway spruce transplants and seedlings, white spruce seedlings, white cedar seedlings, black locust seedlings, Carolina poplar cuttings, balsam seedlings, and European larch.

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### North Carolina Forest Service Completes its First Fire Tower

The first fire lookout tower erected by the North Carolina Forest Service has just been completed on Cameron Hill, in Harnett County. District Forester K. E. Kimball and his wardens designed and built it, with generous local cooperation. The expense of building the tower and about 50 miles of connecting telephone lines was met from the dues of local members of the Cape Fear Forest Protective Association and from Federal cooperative funds. The corner supports of the tower are 60-foot juniper poles 8 inches in diameter at the upper end, and its braces are heart longleaf pine. It is sunk 4 feet in very hard soil, with heavy dead men bolts across the base of the poles on two sides. Creosote treatment given the base is believed to guarantee the tower's usefulness for at least 15 years. The 8 by 8 foot cabin surmounting the tower is glassed all around. On fairly clear days it commands a view of objects 15 to 17 miles distant, and its average effective range is estimated at about 10 miles.

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A cooperator of the Pennsylvania Department of Forests and Waters is the Anthracite Forest Protective Association. Organized in 1917, this association now has 75 active and 158 associate members and operates throughout the anthracite region, having 124,217 acres entered. In cooperation with the State department it erected the first steel lookout towers in the anthracite region.

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### Maryland State Nursery to Expand

The Maryland Department of Forestry plans to increase the output of its forest nursery to 1,000,000 within the next three years. A recent inventory of the nursery showed 250,000 softwood and 150,000 hardwood trees available for forest planting this fall and next spring, also about 9,000 larger trees suitable for roadside planting. The trees are sold at cost to residents of the State.

The strongest demand upon the nursery at present is for loblolly pine to be planted on abandoned farm lands in the Eastern Shore and southern Maryland sections. In the western part of the State white pine and red pine are the most popular forest species.

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### Tree Seedlings for Idaho Farms

More than 80,000 seedlings were distributed to Idaho farmers during the spring of 1926 as part of the cooperative planting work being done in the State under the provisions of the Clarke-McNary Act. Most of this planting stock had been grown from seed and was furnished to the farmers at approximately half cost. It included the following numbers of seedlings of the five species used:

Black locust .....	64,000
Willow and poplar .....	9,000
Western yellow pine .....	3,000
Western white pine .....	3,000
Western red cedar .....	3,000

Requests were received for many more trees than the nursery of the State university could supply, and it is planned to increase the output next year.

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About 200,000 acres of timberland in Tennessee is now protected from fire under the cooperative plan announced by the State forestry division less than a year ago. The owners deposit 1 cent per acre per year and the State contributes the same amount. The individual holdings vary in size from 40 to more than 40,000 acres. Most of the lands listed lie in the Cumberland Mountains.

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Tennessee had a more favorable forest fire season this spring than last. During the period January 1-June 30, 1926, 706 fires occurred, burning over an average of 176 acres apiece. Last year during the same period there were 839 fires, with an average area of 193 acres burned.

### Texas Forestry Problems

(From Texas Forest Facts, published by the State forestry department)

The main forestry problems of Texas are concerned with measures to stimulate reforestation work and with management of existing timber stands in the commercial timber belt of east Texas, which includes roughly 40 counties with an area of about 20,000,000 acres. The virgin pine timber, which originally covered 14,000,000 acres, has been reduced to about 1,300,000 acres and is being cut at the rate of about 200,000 acres a year. More than 3,000,000 acres is not restocking, and an additional 1,500,000 acres has only a poor stand of second growth coming on.

It is estimated that with adequate fire protection at least 80 per cent of the nonagricultural cut-over lands in East Texas would reforest naturally. Forest and grass fires are charged with being the main cause of the failure of cut-over lands to restock, the average piney woods grass fire making almost a clean sweep of trees less than a year old. Carelessness on the part of the general public is the chief cause of fires in the Texas woods, and special emphasis is placed on educational work by the State forestry department.

A State forest located in each of the three principal pine regions of east Texas serves as a demonstration of methods of reforestation and the growing of timber on a sustained-yield basis.

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The first forest fire observation tower in Texas was erected this year on the Kirbyville State Forest. It is of steel construction, and 80 feet in height. Situated on a high knoll, it gives an unobstructed view of the country in all directions. Smoke from mills 25 to 30 miles distant can be seen with the naked eye.

In building this tower the Texas Forestry Department had the cooperation of the Federal Government under the Clarke-McNary Act.

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In forest fire fighting in the Lake States the State rangers are beginning to use water carried to the fire in galvanized iron tanks loaded on trucks. Ranger McDonald of Gordon, Wis., once this spring fought a fire from 10 a. m. to 5 p. m. with a small crew of men using a 3-barrel tank of water loaded on a truck. Five gallon hand pumps were kept in practically continuous operation, with the result that the fire was not only surrounded but mopped up.

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## EDUCATION AND EXTENSION

### Pointers on Logging Small Timber

Extension foresters in several States are taking special interest in passing on to forest land owners and lumbermen a set of pointers on the wastefulness of logging small trees, based on the studies of W. W. Ashe of the U. S. Forest Service. For example, R. W. Graeber, extension forester of North Carolina, has distributed 1,000 copies of this material to farmers and small sawmill operators in his territory. The list as prepared for distribution by the extension forester of the Forest Service is as follows:

It requires more than twice as long to fell and cut up 1,000 feet mill cut in trees 8 inches in diameter as it does in trees 25 inches in diameter.

It requires three times as long to skid 1,000 feet of lumber in logs 8 inches in diameter as in logs 20 inches in diameter.

It requires four times as long to load 1,000 feet in logs 10 inches in diameter as in logs 20 inches in diameter.

It requires more than twice as long to saw up into lumber 1,000 feet from logs 8 inches in diameter as from logs 20 inches in diameter.

Of equal significance is the relative value of the lumber cut from trees of different sizes. Shortleaf North Carolina pine 10 inches in diameter produces lumber selling at \$26 a thousand. At 20 inches in diameter, the lumber sells for \$32 a thousand. Yellow poplar 10 inches in diameter produces lumber selling for \$29 a thousand. At 30 inches in diameter, the lumber sells at the rate of \$48 a thousand. Red oak 15 inches in diameter produces lumber selling for \$28 a thousand. At 25 inches in diameter, the lumber sells for \$37 a thousand. The same is true of maple and birch; it is likewise true of West Coast timber. The differences are most significant with the high cost of logging in general, and with the higher cost of logging small timber the differences are trebly significant, for the operating value of the stumpage of the smaller timber is often negative.

Copies of this list of logging pointers are available upon application to the U. S. Forest Service, Washington, D. C.

## Forestry and the Boy

By John B. Cuno, U. S. Forest Service

I wonder what advantage has been taken by foresters during the summer just passed of the opportunity to teach boys in camps the principles of forestry. Of course some foresters have given talks, described forest fires, and offered help with tree identification; but how many have made any continued effort to teach boys what forestry really means? I have in mind some who have spent their vacations at this work, but they are few indeed compared to the people who have devoted their vacations to teaching nature work. No one will deny that nature work is mighty fine work; but it does not have behind it the usefulness to the Nation that forestry has.

Foresters everywhere have an excellent opportunity during the summer at boys' camps, which are ideal for forestry teaching; to put before the youth of the Nation our great need for forests. No one else is going to take the bull by the horns. It is up to foresters. Hence, in thinking over what you are going to do next summer why not plan to give a month or two to handling the forestry work at some boys' camp. Or, if you can not do that, prepare a program during the winter months that can be followed at a boys' camp, possibly under the supervision of a forest-school student you may select.

Also, what about the feasibility of making use of boys during the summer in lookout work, fire fighting, and trail building? It seems to me that there are tremendous possibilities in combining such work with teaching the boys something of the first principles of forestry.

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## Forestry on the Chautauqua Circuit in the Northwest

Chautauqua audiences in 14 towns of Oregon and Washington were addressed this summer on the subject of cooperative forestry. The Ellison-White Chautauqua Service introduced as the speakers on its fourth-night program Hon. W. V. Fuller, representing the Western Forestry and Conservation Association, and George E. Griffith of the Portland office of the U. S. Forest Service. The forestry program, for which an excellent musical prelude was provided, consisted of an address and an illustrated lecture in which about 100 slides were used, showing forest resources, timber growing, forest fires, fire fighting, and fire prevention. On one occasion the Western Forestry and Conservation Association's motion picture "Forest Protection and Prosperity" was shown also. These Chautauqua lectures, which reached an estimated total of 9,000 people and were very well received, were a continuation of the forest-protection campaign initiated by these men in Oregon in February.

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## Forestry for Mississippi Schools

State Forester Hogue of Mississippi plans to have the educational provisions of the Mississippi Forestry Law put into effect early this fall, under the direction of a State supervisor of forestry education. The law directs State and county boards of public education to introduce the study of forestry in all the public schools and colleges of the State and to provide for the celebration of Arbor Day by all public schools. It also directs the State forestry commission to encourage public interest in forestry through lectures and through the preparation and distribution of informational material. Arrangements are pending looking to the engagement of Mrs. Daisy Priscilla Edgerton, assistant editor of the Office of the Secretary of Agriculture, as State supervisor of these educational activities. Mrs. Edgerton taught for a number of years in the public schools of South Carolina, and has been connected with the U. S. Department of Agriculture for 18 years. During 13 years of this period she was in the U. S. Forest Service, where her activities included editorial work and educational cooperation, particularly three years' cooperation with the schools of the District of Columbia and a detail to the State of South Carolina at the request of the governor for a woman cooperator with schools, colleges, and women's clubs.

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## Boys' Club Work a Great Success in Louisiana

Boys' reforestation club work is remarkably popular in Louisiana. The annual enrollment has grown to about 600, and is limited to that number only because members of the State forestry organization can not give more time to the club work. As it is, many of the boys have carried a season's work to completion without the encouragement of even a second visit from an agent of the State forestry division. Grades are given to the boys, and prizes awarded, on the basis of their handling of forested plots, including protection and thinning, or their planting of plots of idle land. In 1925, State prizes of from \$10 to \$2.50 were given out to 180 boys and parish prizes of from \$4.50 to \$1.00 went to 82 boys. Contributions toward the prizes included \$500 from the Great Southern Lumber Co., \$100 from the Southern Pine Association, and \$45 each from the Lumber Trade Journal and from Washington, St. Tammany, and Tangipahoa Parishes.

State Forester Hine says that the efforts of the State forestry organization, particularly in fire protection, are meeting with noticeably better results in the areas around most of the boys' club plots. He gives a large share of the credit for the success of the reforestation club work to the school authorities and teachers of the State, which was one of the first to provide for forestry instruction in the public schools.

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### Portable Sawmill Demonstration in Connecticut

The first portable sawmill demonstration at a New England college was held August 5 and 6 at Connecticut Agricultural College, Storrs, Conn., as a feature of the forestry program of the annual farmers' week. The attendance averaged 150. Two portable mills of different makes were used, and several different power units. Logs cut from the college woodlot and representing the product of the average Connecticut woodlot were sawed into 8/4 and 4/4 stock. Talks were given by representatives of mill and saw manufacturers on the use of their products, a member of the National Hardwood Lumber Association demonstrated lumber grading by the association's methods, and Prof. R. C. Bryant of the Yale Forest School lectured on "Southern New England Lumber and Its Future."

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### Cooperative Products Study in Idaho

The School of Forestry of the University of Idaho and the Western Pine Manufacturers' Association have entered into a cooperative agreement for carrying on research, mainly with regard to improvements in the use of wood products, durability, moisture content in relation to decay and stain, and new commercial uses. Also the forestry school is to cooperate in the study of the performance of "pondosa" pine (western yellow pine) in service which is being conducted by the manufacturers' association.

With the opening of the fall semester the school of forestry will concentrate on preparations for research into some of the problems of the lumber industry in Idaho.

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A forestry department is being organized in the School of Agriculture of Purdue University. B. N. Prentice, formerly professor of biology, heads the new department and has already begun forestry experiments on the university's farm near Farmland, Ind.

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The arboretum established by the Pennsylvania State Forest School in 1925 was enlarged in area this spring and received a number of new specimen trees. Among the trees planted were European white birch, Japanese black pine, Austrian pine, Pinon pine, bald cypress, high and low altitude Douglas fir, Hercules' club, umbrella magnolia, Chinese varnish tree, Russian olive, and species of Populus, Juglans, and Aesculus. Seed of 57 varieties from Japan and 13 from the Pacific coast was sown at the same time in the nursery beds.

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## Idaho Forestry Graduates Stick to Forestry

A canvass of the alumni of the School of Forestry of the University of Idaho has shown that after graduation practically every one of them engaged in forestry work for a time and that 72 per cent are so engaged at present. Every man in the class of 1926 is going into forestry work or graduate study in forestry. Speaking of opportunities for employment this year the Idaho Forester states that "every member of the senior class had a good job before he graduated and every available undergraduate was placed for the summer well before the close of the year."

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## A Study in Short Lengths

A study of the utilization of short lengths will be made by the department of research in lumber retailing of Antioch College, Yellow Springs, Ohio, under the direction of T. F. Laist. The study was requested by the National Committee on Wood Utilization of the Department of Commerce, and will be made with the cooperation of its subcommittee on waste prevention. Attention will be centered on finding new markets for short lengths and educating the public to the need for using this material. An attempt will be made to estimate the percentage of waste involved in the use of long lengths when short lengths might be used. It is hoped also that the investigation will reveal what the spread in price between long and short lengths should be.

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The University of Minnesota, through the Cloquet Experiment Station, is cooperating with the Lake States Experiment Station in preparing for publication the volume tables for the important timber species of Minnesota.

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Forest plantations were begun or enlarged by 47 schools of New York State this spring. Frank P. Graves, commissioner of education, in proclaiming Arbor Day had urged such plantings as a means of reducing or eliminating school taxes in rural communities where cheap land is abundant. The rural school districts planted 227,700 trees, more than seven times as many as in the spring of 1925.

In the school forest of Watson, Lewis County, trees are planted at the rate of 10,000 a year. This forest will eventually cover 98 acres.

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### Boy Scouts Ride Their Own Fire Truck

Boy Scouts of Glenbrook, Conn., ride to forest fires on their own fire truck. In the Huly Wooden Nutmeg Frank Van Iderstyne, Deputy Scout Commissioner, writes as follows of their work this year:

"The Glenbrook Scout Troop has put out 22 fires this season. The district fire warden has not been present at any of these. While practically all of these are marked "grass fires," they were fires in the edge of the woodland, and if the boys hadn't patrolled and put out these fires quickly considerable woodland in this district would have been burned. In fact, several woodlands around Darien have been burned every year, but this year the Scouts stopped the fires at the edge.

"Mr. Irving, who furnished the truck, made a good investment. We saved his woods twice.

"The boys have answered most of these calls alone."

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Twenty-five Boy Scouts of Hartford, Conn., this spring planted 24,000 pines on the Mohawk State Forest. The boys camped on the forest for a week, the State paying for their board and supervision. Each scout planted an average of 152 trees a day for five days.

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## FOREST SERVICE NOTES

### Timber-Growing Possibilities on the Ouachita National Forest

By W. B. Greeley, Forester, U. S. Forest Service

The old Arkansas National Forest, now the Ouachita, seems to be commonly regarded as the prize stamping ground for chiggers, ticks, and woods burners. Fire indeed has played a fearsome role on the Ouachita. Most any western coniferous forest, burned as often as that region, would long since have disappeared. But young shortleaf pine has a marvelous staying and sprouting capacity. Its knobby roots shoot up afresh after every burning. The oaks and hickories are equally resistant. And so the forest has outlived its abuse. Thinned down and defective as most of the stands are, representing probably half of the possible crop, they give a wonderful promise of the yields obtainable under real protection and forest culture. Areas that have been without fire for twelve or fifteen years make a forester's mouth water.

These Arkansas hills are the natural home of shortleaf pine--an abundant seed bearer, a tree of rapid growth, and a producer of high-quality, soft-textured wood that has given "Arkansas shortleaf" a distinctive place among the southern pines. As we pass beyond the time when fire plays the dominant role in the Arkansas woods, I look to see shortleaf pine extend itself much more widely and attain a growth rate of at least 300 board feet per acre per year. White oak and hickory will be other staple products of the Ouachita. There is every sort of mixture from pure pine to pure oak.

The defect in the present hardwood timber is the forest's toughest silvicultural problem. For this we have to thank three or four generations of woods burning. A mighty job of forest sanitation must be put through to get sound hardwoods in the future. This has been tackled through a silvicultural improvement fund of \$1 deposited for each 1,000 board feet cut under current sales. With this money the Forest Service fells defective hardwoods, particularly old wolf trees.

Practically all the pine stumpage on the Ouachita is in keen demand. Nearly the entire forest is susceptible of truck logging. The largest landowner in the neighborhood has adopted permanent forest management. Others are likely to follow suit. There will be keen local interest and competition in practicing the forester's art. There will be opportunity for forest management as intensive as the woods facts collected will permit. There are chances to work out all sorts of useful silvicultural methods--the thinning of second-growth pine so as to get

the highest growth rate and lumber quality, the conversion of hardwood or mixed stands into pine, the mixtures of pine and oak that will produce the best timber of each, and so on. Nature is so generous in soil and rainfall and growing season that the response to any silvicultural practice that can be carried out will be more rapid than in most of our other forest regions.

Concentration upon fire necessarily marked the pioneer stage in creating the Ouachita National Forest. We are beginning now to get beyond it. The next stage will be one of real timber farming. The local forest officers will steadily master the fine points in timber culture. Silvicultural practices will become more intensive. And the Ouachita will become one of the most productive forest areas, in wood and money, to be found in the Union.

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#### Predicting Douglas Fir Crops

By Thornton T. Munger, U. S. Forest Service

More than 100,000 feet per acre in 100 years looks like an unbelievably large yield to those who are accustomed to cruise or log only fifty or seventy-five thousand feet per acre in old virgin timber. Yet the new yield tables which the Pacific Northwest Forest Experiment Station has just finished for the Douglas fir region show that "excellent" land (Site I) ought to produce 115,110 feet at 100 years of age, Scribner rule. As a matter of fact, a forest has just about as much actual volume of wood at 100 or 150 years of age as it is likely to have at 500 years. After the trees reach their mature height they keep on growing in diameter, but the smaller ones die out about fast enough to offset the growth of the big trees.

These growth tables were prepared for normal and fully stocked stands as a standard and assume that each tree is used fully up to an 8-inch top and that there is no loss from defect or breakage. In actual practice the usable volume will be somewhat less, and until we have perfect reforestation and fire protection the stands of the future will not be so well stocked over large areas as these new yield estimates presuppose.

The tables are the result of several years' study of second-growth stands all over western Washington and Oregon north of the Umpqua watershed. Richard E. McArdle has been in charge of the field study the last two seasons and the past winter concluded the job of compiling the mass of field measurements. Over 2,000 sample plots were measured in stands of every age from 20 to 150, on all kinds of soil and in every climatic zone.



Five grades of land or "site classes" were distinguished--excellent, good, fair, poor, and very poor. Much of the "excellent" quality land is on the foothills and has agricultural value. There is little of the last two classes except on sterile gravel plains. The height of the timber in consideration of its age is the handiest way to fix the quality of the site.

The following table gives some of the principal results of this growth study--the normal yield of fully stocked stands of various ages on the three best classes of land, in board feet by Scribner's rule, assuming close and complete utilization.

Yield---Board Feet			
Age	Excellent Land	Good Land	Fair Land
40	24,400	12,000	4,500
70	78,300	57,200	35,100
100	115,100	89,900	62,900
130	136,900	111,000	80,000
160	152,800	126,000	92,300

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#### Fire on the National Forests in the Northwest

The worst fire weather on record in Oregon and Washington occurred in July of this year. Somewhat similar conditions of low humidity, high temperature, and high winds contributed to rolling up the fire losses also in northern California, and particularly in Idaho and Montana, in July and August. In addition, lightning played a heavy role in starting fires. In one period of 10 days 319 out of 397 fires in Washington and Oregon were caused by lightning. Much of the fire loss in northern California is charged to lightning storms, 65 fires in the Sierra Forest starting from a single storm. In one day lightning storms set 97 fires on the Kaniksu Forest in Washington and Idaho.

By August 20 the fires in northern California, Washington, Oregon, northern Idaho, and western Montana had covered more than 500,000 acres of national forest land. Fires outside the boundaries of the national forests added many thousands of acres to the burned area.

At the worst period more than 3,000 men were employed by the Forest Service in fighting fires in Montana and northern Idaho. Neighboring labor markets were drained in the search for men and troops from Fort Missoula, Mont., and Fort George Wright, Wash., were called on to help. The cost of fighting the fires on the national forests in this territory was more than \$1,250,000.

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## Hearings on Northern Pacific Land Grant Claims

The special joint committee of Congress investigating the Northern Pacific Railway Co. land grants convened on April 14 of this year and held hearings until June 29, when it adjourned for the summer. This was the second series of hearings held by this committee, the first having been held from March 18 to May 20, 1925. The committee, which includes five Senators and five Representatives, was created under joint resolution of June 5, 1924, to hear testimony in connection with the claim of the Northern Pacific of a right to select approximately 2,600,000 acres of land included in the national forests of Montana, Idaho, and Washington and valued at about \$25,000,000.

The testimony at these hearings, a digest of which is now being prepared for use of the committee when it reconvenes in December, seems to indicate that the railroad company has not complied with the terms of its land grant from the Government to an extent warranting its effort to acquire title to  $2\frac{1}{2}$  million acres of national forest land.

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The timber business transacted on the national forests during the year ending June 30, 1926, surpassed in a notable degree the previous high mark established during the fiscal year 1924. As compared with that year's record there was a gain of 4.3 per cent in amount cut, 9 per cent in the contract value of timber cut, and 10.7 per cent in timber receipts. In both the first and the fourth quarter timber receipts went beyond the million mark, which they had not reached in any quarter of any preceding year. The total amount of timber cut on the national forests during the year was 1,192,517,000 board feet, its contract value was \$3,370,618, and receipts from timber sales and settlement were \$3,352,089.

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The purchase of 141,645 acres within the eastern national forests was authorized by the National Forest Reservation Commission during 1926, bringing the total area of these purchased forests to 2,709,103 acres. The largest purchase and the largest total area in any one State authorized for purchase during the year was 59,530 acres in the Allegheny unit in Pennsylvania. Others of notable size were 36,704 acres in the Unaka and Cherokee Forests in Tennessee and 22,654 acres in the Ouachita and Ozark Forests in Arkansas. Purchases were authorized also in Virginia, West Virginia, Georgia, North and South Carolina, Alabama, Maine, and New Hampshire.

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## Attempts to Solve a National Forest Game Problem

By Will C. Barnes, U. S. Forest Service

On the basis of several court decisions the States have claimed full jurisdiction over all game animals within their boundaries whether on public or on private land, not excepting national forests, national parks, national monuments, or even national game refuges. This claim has been surrendered by the States to the Federal Government in the case of nearly all the national parks. Also North Carolina, Tennessee, Oklahoma, Georgia, and Pennsylvania have surrendered their claims to the game animals on all the national forests within their borders. On most of the national forests, however, the Forest Service, while directly responsible for forest administration, is powerless to take such action in connection with game management as in certain cases seems necessary to protect the areas and adjust the various phases of their utilization, unless the State game authorities approve and agree to such action. This anomalous state of affairs has brought about some very unsatisfactory and embarrassing situations.

Game problems exist on almost every national forest, and some of them are extremely complicated and difficult of solution. Of the outstanding cases that of the deer herd on the Kaibab National Forest in Arizona is probably the first in importance.

The Kaibab National Forest embraces the Kaibab Plateau, a huge island about a million acres in extent rising rather abruptly 3,000 to 4,000 feet above the surrounding country. The major portion of this plateau is heavily timbered, principally with yellow pine. On the south and east the practically impassible Grand Canyon cuts it off from the rest of Arizona. To the west and north lies a wide belt of semi-desert country.

Practically the entire plateau was included in the Grand Canyon Game Preserve established by President Roosevelt in 1906. Government hunters at once began a constant warfare on mountain lions and other animals that preyed upon the deer. Also, because there was not enough feed for both the deer and the domestic stock on the forest, the Forest Service has decreased the grazing permits from year to year until only about 2,200 cattle are now grazed on the area.

In 1919 about one-fourth of the Kaibab National Forest area was transferred to the Grand Canyon National Park. This introduced a supplementary complication: while the national forest portion of the area is managed by the Forest Service of the Department of Agriculture, the park portion is under the Park Service of the Department of the Interior. Within all national parks the killing of any game animals except those in the predatory class is prohibited by law. It is estimated that about one-third of the Kaibab deer herd now range normally within the boundaries of the national park, the remainder for the most part grazing within the national forest.

Under almost complete protection the deer have increased so rapidly that in 1926 they number about 35,000 or 40,000. According to the best estimates of the Department of Agriculture the grazing capacity of the range is not more than 20,000 or 25,000 head. In other words, this area is now overstocked by from 15,000 to 20,000 head of deer. Hemmed in by the desert and the canyon, the deer can not spread to other grazing grounds. Hunting under the State laws is decidedly inoperative, owing to the fact that the area can be reached by residents of Arizona only with great difficulty and the nonresident license is expensive and permits the killing of but one deer.

With the cooperation of the Biological Survey, the Forest Service has endeavored to work out plans by which the annual surplus of from 6,000 to 8,000 head may be disposed of in a legitimate economic manner and the herd maintained at a fairly uniform number. To allow the herd to go on increasing without some plan for disposing of the surplus can not be considered for a moment. The service proposed that sportsmen be allowed to enter the area at certain periods and kill a restricted number of the deer, but the Governor of Arizona refused to allow the State game laws to be set aside. In the second place it was proposed to ship the surplus to portions of the country where deer are not now found or to private estates and zoos. This was given a trial. It involved building a crate for each individual deer, capturing the deer in trap corrals, and transporting them by motor truck over 150 miles of very difficult road to the railway. Although every scheme was tried that gave any promise of success only 18 deer were coaxed into the corrals, and of these 10 dashed themselves to death against the walls as soon as efforts were made to work them into the close pens and thence into the crates. The actual cost to the Government of the crates and transportation to the railroad was \$35 per animal.

A third proposition was to capture fawns and raise them for distribution to other areas. This was thoroughly tried out in 1925. In the beginning nothing was known as to the proper methods of capturing and raising the fawns. The Biological Survey had experimented with raising antelopes in northern Nevada, with considerable success, but much of its experience was found to be inapplicable to the deer. The plan arrived at was to contract with men living near the forest to capture the fawns as early after birth as possible, raise them on cows' milk, and deliver them in the fall to the Forest Service at an agreed price of \$20 each. The Forest Service undertook to ship these fawns to applicants after October 15 at the nominal rate of \$35 each delivered at the railway point in Utah. Several fawn-raising centers were established in May, 1925.

The young animals were practically all dropped between June 15 and July 10, and almost invariably on the high ridges. In searching for them the practice was to ride horseback through the timber keeping keen watch



for the little animals, which when found were always lying prostrate on the ground and which were not easy to discern. The instant a fawn realized that it was discovered it was up and off. The fawns run very fast, hence only the very young ones could be captured. Dogs trained to handle sheep were used with good results. A dog would run a fawn down and bump it over with his nose, generally holding it down with his front paws. Some of the dogs were muzzled, because occasionally they would attempt to hold the fawns with their mouths, and the slightest injury to the little animals was invariably fatal.

The captured fawns were carried at once to the farms and placed in enclosures of one or two acres surrounded with woven wire fences 4 feet high. It was necessary to keep them in small pens for a few days until they learned to take milk from a bottle and until they were tamed a little. At first they were extremely wild and would injure themselves by jumping against the fence. All were fed with warm milk from a bottle with a rubber nipple. In the beginning each fawn was fed about one pint of milk three times a day. Later on they were fed only twice a day. They thrived under this system and were always hungry when offered the bottle. Rock salt and water were kept in the pens, and, after the first month, some alfalfa and oats. The fawns were extremely fond of aspen leaves, and they trimmed up the little pine trees inside the pens but were never seen to eat grass. Aspen and yellow pine branches were cut and placed in the pens as feed, which they browsed freely.

Some of the fawns died from constipation in spite of every effort to save them, but scours were effectively controlled by giving hot scalded milk. Losses were heavy all summer long. Many of the fawns died for no reason that could be determined. In a number of cases death was caused by flies laying their eggs in the long hair on the hind legs of the fawns. As soon as this was discovered further loss was prevented by clipping the hair from the infested parts and treating with sheep dip. On one of the farms an entire herd died of a mouth disease, which was found to have been caused not by the close confinement or any infection in the pens but by conditions existing in the animals before they were captured. Ticks caused one or two deaths.

The fawns on one or two of the farms, as they grew older, were turned loose in the near-by timber. They would disappear for the entire day but invariably came back at feeding time when called. The fawns so treated made much better growth than those not turned loose.

The total number of fawns captured was 363. Of this number 94 survived and were delivered to the Forest Service. Two died en route to the railroad. Only one or two died during the railroad journey, the rest reaching their destinations in good condition. Shipments went to every section of the country and to nearly every State.

While the experience gained during the season of 1925 resulted in improved plans for 1926, it is obvious that this method will never account for the number of animals that should be taken from the game preserve from year to year, because the demand for fawns raised in captivity is not strong. In the final analysis reductions must be effected through longer open seasons, the allowance of more than one deer to a hunter, and a lower charge for the nonresident license. To these variations from the State law the State authorities seriously object, without offering any alternative measures.

The problem is still there--and unsolved.

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#### Planting Imported Chestnuts

Plantings of the Chinese chestnut (Castanopsis delavayi), which has proved to be unsuited to the climatic conditions of the southern Appalachians, are to be made in the region of the Everglades and perhaps also in the central part of Florida, by arrangement between the U. S. Forest Service and the Florida State Agricultural Experiment Station. Another trial is to be made in the California coast redwood region near Fort Bragg, through the courtesy of the Union Lumber Co., and at Scotia, Calif., through the kindness of the Pacific Lumber Co. Some 200 trees will be set out in the two California plantations. An equal number will be planted by the Pacific Northwest Forest Experiment Station, at the Wind River station. The presence in the Northwest of a native species of Castanopsis would seem to indicate a regional adaptation of this group.

Castanea mollissima, a true chestnut usually known as the Chinese woolly chestnut, has been grown by the Bureau of Plant Industry for some 12 years at the Bell, Md., station, where it appears to be perfectly adapted climatically and has shown unquestionable ability to resist the chestnut bark disease. Plantations of this species made this spring at the Appalachian Forest Experiment Station and at Letchworth Park, N. J., during the past season have shown satisfactory growth and have not revealed the presence of disease; but it is too soon to say how successfully Castanea mollissima will meet the test of disease and show fitness for growth in the soil and climatic conditions in which our native chestnut has lived and died.

Dr. Walter Van Fleet produced a thoroughly blight-free hybrid chestnut by crossing Castanea mollissima and our native Castanea pumila. The fruit of this hybrid is sweet and larger than that of our native chestnut. This hybrid is likely to be of great importance as an orchard chestnut, because it can be multiplied abundantly by budding and grafting. But since hybrid nuts can not be depended upon as a means of propagation it is not likely to be of service as a forest tree.

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## Government Specifications for Wood Preservation

The Federal Specifications Board, which is concerned with standardizing specifications for materials for purchase and use by the Government, has adopted as the Government standard the current specifications of the American Wood-Preservers' Association and subsequent revisions that may be made. This action was taken on the recommendation of a committee on wood preservation, composed of eight men from as many different branches of the Government headed by a member of the Forest Service as chairman. The specifications are embodied in Master Specification No. 395 and are made mandatory from July 1, 1926.

The specifications of the American Wood-Preservers' Association represent the best commercial practice in existence at the present time. These specifications are based upon the results of exhaustive research and experimentation in the field of wood preservation by both Government and private agencies, and have had wide practical application by Federal and State agencies, by railroad companies, telephone and telegraph companies, steamship lines, and electric light and power companies, and in other industrial fields. They cover preservatives, processes of treatment, treatable material in various forms, and analyses and tests of preservatives.

Attached to and made a part of Master Specification No. 395 is a schedule of recommended practice in the preservative treatment of timber in various forms, prepared in the form of a tabular statement. This schedule shows by kinds of wood the various classes of products which it is good practice to treat, the kind of preservative to use, the requisite absorption, and the specification for treatment, and includes explanatory remarks bearing on each class of product and its treatment. Copies of this schedule of recommended practice may be obtained upon application to R. K. Helphenstine, jr., Chairman of the Wood Preservation Committee, U. S. Forest Service, Washington, D. C.

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### Experimental Tract Presented to the Government

The Cleveland-Cliffs Iron Co. of Marquette, Mich., has presented 320 acres of land to the Federal Government to be used by the Lake States Forest Experiment Station for experimental purposes. This tract, consisting of partially cut-over hardwood and swamp land, adjoins the half-section of virgin timber which the company has already given to the Government subject to the 20-year reservation of timber cutting. The Michigan Conservation Commission has contributed \$2,500 for buildings, and other agencies are cooperating in improving the grounds and in starting work. A sample area has been carefully marked to demonstrate selective cutting in old-growth hardwoods, and instrumental methods are being employed to get at the effect of cutting upon the local climate.

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## Fire Weather Signals for Northern Rocky Mountain Region

The Northern Rocky Mountain Experiment Station, at Priest River, Idaho, this season issued a bulletin to field men in northern Idaho and western Montana with the following table of weather indicators of fire danger:

	Generally safe	Slightly dangerous	Dangerous	Extremely dangerous
Temperature	55 degrees or less	56 to 70 de- grees	71 to 85 degrees	Over 85 degrees F.
Relative humidity	71 per cent or more	46 to 70 per cent	26 to 45 per cent	25 per cent or less

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The forest tax investigative staff has moved from New Haven to Minnesota, the State chosen for its first field study. Headquarters have been established at University Farm, St. Paul. Miss Jennie Goddard has reported for duty as statistician. With the help of officers of the State government, the University of Minnesota, the Minnesota Tree Society, and the Lake States Experiment Station, the staff are familiarizing themselves with local sources of information. Initial studies are under way in several counties, and statistical studies covering the entire State have been begun.

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The National Board of Directors of the National Tent and Awning Manufacturers' Association has approved a suggestion of W. I. Hutchinson of the U. S. Forest Service that all tent manufacturers stencil on the door flaps of their tents the slogan "Help Prevent Fires--It Pays." This recommendation will be brought before the members of the association at their national convention on October 25.

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The streamflow study at Wagonwheel Gap, Colo., has been discontinued by agreement of the Weather Bureau and the Forest Service. Observations have been carried on over a period of 19 years on two watersheds, one of which was denuded in 1919. The gauging stations will be dismantled in October. C. G. Bates of the Forest Service and B. C. Kadel of the Weather Bureau will cooperate this winter in compiling the data.

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## GENERAL FOREST NEWS

### American Forest Week

American Forest Week is a spring festival; but if the music of the festival is to be a glorious and successful harmony it behooves the singers to choose their tunes and do a little practicing in the fall and winter.

This spring the week was a decided success on the whole; judging by reports, however, some important opportunities were missed because of last-minute arrangements and insufficient localization. The Forest Worker can not speak for the committee; but unless the trend of the movement is reversed effort will continue to be directed toward more and more localization--more regional and especially more State organization of the work. It is not too early for wide-awake State forestry associations and other regional, State, and county organizations to be thinking about methods of making the week a success in their locality next spring. Now is the time also to begin the preparation of material for publication and programs. Last year almost every variety of public appeal was used--official proclamations, pamphlets, newspaper articles, radio talks, addresses, pageants, motion pictures, exhibits, posters, window displays. Business men in some localities carried American Forest Week information or slogans in their advertisements. In one city the hotels featured American Forest Week announcements on their menus. In most States the schools cooperated actively in celebrating the week. More than 5,000 talks are known to have been given--and probably this is not a third of the total. Forestry was on the air during the week at least 175 times. The published material sent out by the Forest Service alone amounted to more than 1,500,000 pieces.

In spite of the success of the week nationally and in most of the States, there were fail spots where the seed failed to germinate. One school head refused to have anything to do with the week, saying it interfered with the pupils' training. Here and there it appeared that enough local information was not available to make the week a full success. The answer to most of the difficulties encountered is apparently more local action. State leaders, county leaders, community and neighborhood leaders are best able to discover and provide for local needs. There is special opportunity for professional foresters in private practice to prepare articles for the press and thus at once identify themselves with a progressive movement and strengthen the hands of the State and local organizations. It is to be hoped that through State and extension foresters, local forestry

associations, and other similar agencies better provision can be made for meeting local needs next year than ever before. The time to start is now, and every reader of the Forest Worker can have a part in the good work. Have you thought about the things that need to be done and the material that needs to be prepared to make the week a success in your particular community next spring?

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### The Progress of Wood Preservation in the United States

By R. K. Helphenstine, jr., U. S. Forest Service

In his address before the National Conference on the Utilization of Forest Products President Coolidge said "A tree saved is a tree grown." In the field of wood preservation an even higher degree of economy is effected. A fence post that is properly treated will last three times as long as an untreated post. A fence post treated means two fence posts saved. The same holds good with other forms of forest products.

Although the injection of chemicals into wood to prolong its life has been practiced for a great many years, the commercial treatment of timber did not begin in this country until 1848, when a kyanizing plant (a plant employing mercuric chloride as a preservative) was constructed at Lowell, Mass. This plant, which was originally used for the treatment of canal and lock timbers, is still in operation. About 1874 a treating plant using creosote was constructed at West Pascagoula, Miss. From that time until the beginning of the present century the growth of the industry was very gradual, and even as late as 1904 there were only 30 treating plants in operation in the United States.

After that year, however, the industry began to make remarkable progress. In 1909, or just 5 years later, the number of plants had more than doubled. The 64 plants in operation in 1909 consumed 51,431,212 gallons of creosote and 16,215,107 pounds of zinc chloride in the treatment of 75,946,419 cubic feet of wood. In 1920 there were 115 active treating plants. In other words, the industry in just 11 years had again nearly doubled its capacity. These plants during that year treated 173,309,505 cubic feet of wood, consuming 68,757,508 gallons of creosote, 49,717,929 pounds of zinc chloride, 1,848,911 gallons of paving oil, and 1,772,084 gallons of miscellaneous preservatives.

In 1925, the latest year for which statistics of the industry have been compiled, 167 treating plants were actively engaged in the preservation of wood. This represents a further gain of nearly 50 per cent in plant capacity since 1920. The preservatives consumed in 1925 consisted of 167,642,790 gallons of creosote, 13,048,539 gallons of petroleum, 2,080,287 gallons of paving oil, 26,378,658 pounds of zinc chloride, and 331,591 gallons of miscellaneous preservatives. The total quantity of wood that was given preservative treatment during that year was 274,474,538 cubic feet, or more than  $3\frac{1}{2}$  times the quantity reported in 1909.

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## Color as an Indication of Infestation in Yellow Pine Forests

By W. D. Edmonston, U. S. Bureau of Entomology

A forest entomologist in viewing a body of yellow pine for the first time depends to a great extent upon his knowledge of color. Any change in the color of the foliage from normal green at once attracts his attention. In a preliminary insect survey of extensive areas color is chiefly depended upon to supply the data necessary as a basis for intensive surveys. In a mountainous country where from points of vantage distant timbered areas can be viewed, it is possible, by noting the various colors of the foliage, to arrive at conclusions as to increase or decrease of infestation as well as at an estimate of the yearly loss.

Yellow pine which is attacked by *Dendroctonus ponderosae* in August rarely if ever shows any change in the color of the foliage until the following year. During the past season on the Kaibab National Forest, Ariz., a large series of infested yellow pine trees were closely observed and changes in the color of the foliage were recorded as they occurred.

Twenty infested trees with an average diameter of 25 inches, in eight group infestations located at varying distances on a mile strip, were constantly under observation. Every three or four days the color of the foliage was noted and compared with that of the other trees in the group. The trees were attacked during August, 1924, and the records covered the period from May 1 to September 19, 1925. The foliage of all infested trees remained green up to May 10. On the 11th only a few had faded. This fading was more marked after a tree had been felled, when it was found that the leaves were a grayish green and dry. On the 18th a slight yellowing of a few trees was recorded. On the 28th nearly all the trees had faded and from the 24th to the 27th they had a decided yellowish tinge. On June 15 all the trees were a decided yellow, on the 22nd a few were slightly sorrel. From the 18th to the 23rd of July all were decidedly sorrel and on the 30th a few were beginning to turn reddish. The line of demarcation between yellow and sorrel is difficult to assign to a specific date. However, a noticeable change from yellow to sorrel was recorded after the end of June and all the trees could be classed as sorrel after the end of July. From the 12th to the 20th of August most of the sorrel-colored trees were decidedly reddish and from then until the middle of September all the trees could be classed as red tops.

It would appear that the period June 15-July 31 is the logical time for field examinations if color of the foliage is to be the basis upon which the location and amount of infestation is judged.

## Logging Small Hardwoods Unprofitable

(Abstract from an address by Raphael Zon before the Northern Hemlock and Hardwood Manufacturers' Association.)

A study by the Lake States Forest Experiment Station of the cost of logging large and small hardwood trees in Michigan and Wisconsin has brought out the fact that lumber produced from logs of a top diameter of 11 inches just about covers the cost of production, without allowing anything for stumpage or profit, and that logs below 13 or 14 inches are being produced and milled at a loss.

The total cost of logging is much greater for small logs than for large logs. For 1,000 board feet, gross scale, of 8-inch logs the cost is about \$20. For 24-inch logs the cost is about \$9.37. The cost of both logging and milling 8-inch logs is \$36.20 a thousand; and for 20-inch logs \$21.20. With the sale value of the lumber from 8-inch logs at \$22.10 and of 20-inch logs at \$41.40, there is a loss of \$14.10 on the 8-inch logs and a profit of \$20.20 on the 20-inch logs.

The reason for the small value of lumber from the 8-inch logs is the large amount of lower grades. All of the lumber from 8-inch logs is common and 75 per cent of it is No. 3 common. Logs 16 inches at the top yield about 18 per cent of the higher grades and only 45 per cent of No. 3 common. Logs 20 inches in diameter at the top yield 23 per cent of the higher grades and only 37 per cent of No. 3 common.

The study indicates that trees below 15 inches in diameter, breast high, are being logged at a loss.

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## Turpentining Small Trees Unprofitable

There is no profit in turpentining trees that yield less than 25 barrels of spirits from a "crop" of 10,000 trees, according to Lenthall Wyman, associate silviculturist of the Southern Forest Experiment Station. In his opinion, anyone who works trees smaller than this pays for the privilege of doing so.

Tables prepared by the U. S. Forest Service show that 7-inch trees yield roughly 25 barrels, based on 32 streaks or tappings, during the season. To give a fair margin of profit, it is recommended that no tree under 8 inches in diameter at breast height, or 9 inches in diameter at 2 feet above the ground, should be worked. In 5 or 6 years such trees will yield 6 or 7 more barrels of spirits to the crop.

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## The Latest News on Woods Fertilizer

Dr. C. C. Fletcher of the Bureau of Soils, U. S. Department of Agriculture, has made a chemical analysis of the "straw" of longleaf, shortleaf, and loblolly pine. According to his figures a ton of "straw," which is the quantity estimated to be deposited yearly on an acre well stocked with mature trees, contains fertilizer materials of the following quantities and values:

### Longleaf Pine

Nitrogen.....22.0 lbs., @ 15¢ = \$3.30  
Phosphoric acid.... 5.8 " " 5¢ = .29  
Potash..... (trace)

\$3.59

### Shortleaf Pine

(Shortleaf Yellow, or Upland Shortleaf)

Nitrogen.....14.2 lbs., @ 15¢ = \$2.13  
Phosphoric acid.... 5.4 " " 5¢ = .27  
Potash..... none

\$2.40

### Loblolly Pine (Oldfield Pine)

Nitrogen.....9.0 lbs., @ 15¢ = \$1.35  
Phosphoric acid....3.6 " " 5¢ = .18  
Potash..... none

\$1.53

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### The 1925 Fire Score

In the calendar year 1925, 85,762 forest fires were reported to the Forest Service. They burned over 26,518,715 acres of land, all told. This is a decrease of 6,159 fires and 2,304,000 acres from the 1924 totals.

Incendiarism is again reported as the cause of the greatest number of fires, 17,174. Brush burning was responsible for 13,889, smokers for 9,805, railroads for 8,672, lightning for 6,847, camp fires for 6,069, and lumbering for 4,755. The causes of 11,330 are unknown.

The total damage to timber, young growth, and forage was \$23,952,473 and to improvements and forest products \$4,102,405, decreases from 1924 of \$7,462,564 and \$2,610,984 respectively.

The greatest number of fires occurred in the Southeastern States, the total there being 33,610, or 79.2 per cent of the national total. The West Mississippi States had 23.1 per cent of the total, the Pacific States 7.9 per cent, and the Northeast 8 per cent. More than 54 per cent of the total damage and 51 per cent of the total burned area was in the Southeast.

### The Advance of Stumpage Prices

Stumpage prices of Lower Mississippi timber have in the period 1900-1924, inclusive, made a greater advance in relation to average prices for the United States than those of any other region. This reflects the tremendous increases in the prices of longleaf pine and cypress. The striking contrast of this advance with the trend of stumpage prices in other regions in the 25-year period is shown in the following figures based on a study by C. W. Boyce of the U. S. Forest Service:

Region	1900		1924	
	Average Price	Per Cent U.S.Average	Average Price	Per Cent U.S.Average
United States	\$2.20	100	\$5.95	100
New England	3.45	157	9.50	160
Middle Atlantic	2.80	127	8.25	139
Lake States	4.30	195	8.80	148
South Atlantic	.95	43	5.95	100
Lower Mississippi	1.00	46	8.15	137
Northern Rocky Mountain	.30	14	3.50	59
Pacific Northwest	.55	25	3.00	50
California	1.05	48	4.45	75

### Forestry at the International Plant Congress

The Forestry Section of the International Congress of Plant Sciences held at Ithaca, N. Y., August 16-23, had as its general topic "The Scientific Foundation of Forestry As Exemplified by Forest Experiment Station Work." Tor Jonson, head of the National Forest School of Sweden, was chairman; C. D. Howe of the University of Toronto, vice chairman; and Ralph S. Hosmer of Cornell University, secretary. Addresses were made by Doctors Jonson and Howe; A. Rodger of the Forest Research Institute and College, Dehra Dun, India; James W. Tourney of the Yale Forest School; and Raphael Zon and E. N. Munns of the U. S. Forest Service. Papers to be read before



the section were sent by Arrigo Serpieri and Aldo Pavari, of the Institute of Agriculture and Forestry, Firenze, Italy; M. E. Tkatchenko of the State Institute of Experimental Agronomy, Leningrad, Russia; Sven Petrini of the Swedish Forest Experiment Station, and A. K. Cajander of the Forestry Department of Finland. A. B. Recknagel of Cornell University led a symposium on international forest bibliography, and S. T. Dana a round-table discussion of reorganization of the International Association of Forest Experiment Stations.

Several reels of motion pictures illustrating the work of the U.S. Forest Service were shown at an evening session.

The field meetings of the section were very much interrupted by heavy rains, which thoroughly soaked the participants.

The section agreed on the following recommendations:

That a committee on forest bibliography be established to include those countries that have active forestry organizations, Doctor Hesselmann of Sweden continuing to serve as chairman of the committee.

That the International Union of Forest Experiment Stations be revived and all countries conducting forest research on an organized basis, through either experiment stations, forest products laboratories, or economic studies, be invited to participate.

That the International Institute of Agriculture, at Rome, be made a clearing house for all forestry information for the present, instead of a new international enterprise being organized separately or such an office being established in the International Union of Forest Experiment Stations.

At the conclusion of the congress the New York Conservation Department entertained the visiting delegates with a 4-day tour through the Adirondacks.

The Ithaca meeting was a disappointment in that so few foreigners attended. The foreign foresters present included, beside those named above, Dr. F. Comte of Yverdon, Switzerland, and Dr. J. von Monroy of Saxony, Germany. The following American institutions and organizations were represented: The forestry department of Cornell University, the Pennsylvania State School of Forestry, the New York State College of Forestry, the Yale Forest School, the New York Botanical Garden, the division of forestry of the Indiana Department of Conservation, the Tropical Plant Research Foundation, the Boyce Thompson Institute for Plant Research, the Browne Paper Co. of New Hampshire, and the U. S. Forest Service.

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## Southern Pine Association Adopts Specifications for End-matched Lumber

At its midsummer meeting at Memphis, July 23, the Southern Pine Association adopted rules for grading, bundling, and trimming end-matched lumber. Lengths recognized for flooring were minimum averages of 5 to 9 feet for the different grades, all material to be bundled, and the shortest bundle 2 feet. The minimum average length permitted for 6 and 8 inch sheathing, shiplog, and roofers is 10 feet. The practice of end-matching has an important bearing on the utilization of short lengths and the reduction of waste.

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## Paper Company Establishes "Woods Vigilance Committee"

The Great Northern Paper Co. announced in the August number of its periodical The Northern the establishment of a new department--the fire patrol. This department operates as a separate unit, with a superintendent in charge of each of the two sections of the company's territory and patrolmen "equipped with Ford trucks, motor-cycles, canoes, motor canoes, and 'shanks mare'." The men are described as the "woods vigilance committee to discover and prevent forest fires." In addition to the superintendents, 22 men are listed as taking part in this patrol work.

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One hundred and fifty California organizations and agencies engaged in economic and statistical research have joined to form an economic research council. This action was sponsored by the conservation department of the California Development Association--the State organization of chambers of commerce, of which Norman H. Sloane, formerly supervisor of the Monterey and Cleveland National Forests, is general manager. C. L. Hill of the California District office of the U. S. Forest Service is chairman of the committee on natural resources.

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The Federation of Women's Clubs of the State of Washington has purchased 60 acres of fine virgin timber on the Sunset Highway, 15 miles above North Bend, Wash., for a State park. An individual or club subscribing \$100 can have its name placed on a tree.

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The Bastrop Pulp and Paper Co., Bastrop, La., has purchased 150,000 acres of timberland, mostly cut over, from a lumber company which retained title to timber 11 inches or more in diameter. The company expects not only to utilize the small timber now on the land in the manufacture of paper but also to grow timber for that purpose.

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## Forestry Pays Texas Farmers

How well forestry pays the Texas farmer is illustrated by C. B. Webster, farm forester for the Texas Department of Forestry, with the following instances. I. A. Bryan, a banker and farmer of Hawkins, Wood County, recently sold the third crop of timber from the 300-acre forest on his farm. He received for this one crop more than he had originally paid for his forest together with 200 acres adjoining it when the whole 500-acre tract was covered with virgin timber. A Gregg County farmer last year sold his mature timber for a sum covering not only the original purchase price of his entire farm but the price of bonds the interest from which will pay all the taxes on the farm. Young trees remaining on this property will be ready to harvest within 10 years.

More than half the wooded area of the piney woods country of Texas, Mr. Webster says, is owned by farmers, who are thus in a position to supply at least 50 per cent of the State's timber needs. He predicts that the area of woods on east Texas farms will not decrease further and may be increased.

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## Fire Lines Built by Machines

A machine for constructing fire lines was used recently on the operation of the Fruit Growers' Supply Co. on the Lassen National Forest. The equipment consists of a 10-ton tractor and a specially constructed V-shaped drag. The drag is built of manganese steel plates, and is about five feet on the sides and three feet wide at the back. The sides are straight, about one foot high, with a solid horizontal plate at the midpoint. The top of the drag is loaded with boulders held in place by cross partitions.

Excent on very rocky ground, the drag digs a furrow some six inches deep and three feet wide. The dirt is shouldered out and forms a bank about one foot wide on each side, giving a total width of mineral soil of about five feet. Brush, reproduction, old logs up to 2 feet in diameter, spongy carpet, and large boulders up to 300-400 pounds are mowed down or shoved aside with ease.

Something like a mile of line, requiring little hand work to touch it up, can be built in an hour, at an expense of not more than \$4. Supervisor Durbin figures that a similar line of the same length built by hand would cost \$100.

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The term "Philippine mahogany," as applied to a group of Philippine woods not related to the mahogany, is misleading and should not be used, according to orders issued by the Federal Trade Commission in July.

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## County Forest Project in Wisconsin

A county forest is one of the projects on the program of the board of supervisors of Rusk County, Wis. Tracts of land totaling 7,000 acres on which delinquent taxes have not been paid and which are now in the county's hands are expected to form the county's first public forest. These lands bear some timber, and they will be given fire protection and other care necessary to encourage tree growth. In carrying out its idea of putting the county into the timber-producing class the board will have the cooperation of a recently organized county forestry club, which is the nucleus for a county fire-prevention organization. With some 559,000 acres of land, 90 per cent of which is said to be undeveloped, the county is turning to forestry in an endeavor to solve its land problem.

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### Thrifty Red Oak Plantation

Red oaks planted 19 years ago on a farm in Westmoreland County, Pa., have in the past 4 years grown 14 feet in height and 1 inch in diameter. In 1907, 20 acres of the Valley View Farm of the H. C. Frick Coke Co., near Everson, was planted with 1-year-old red oak seedlings spaced 6 by 6 feet. The soil is a loose clay loam overlying a light-colored, stiff, binding clay subsoil. Measurements of this plantation taken in 1922 and again in July, 1926, when a permanent sample plot was established, showed the following heights and diameters:

Average height		Average diameter at breast height	
1922	1926	1922	1926
16 feet	30 feet	2.1 inches	3.1 inches

The 1922 measurements showed 950 trees to the acre. The sample plot shows that there are now 744 trees to the acre. Volume per acre was computed at 291.8 cubic feet in 1922 and at 736.8 cubic feet in 1926. This indicates that the average annual volume increment during the last five years was 89 cubic feet.

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## FOREIGN NOTES

### Vallombrosa One-third Planted

By L. C. Evrard, U. S. Forest Service

"I found me in a gloomy wood, astray  
.....and e'en to tell  
It were not easy task, how savage wild  
That forest, how robust and rough its growth."

—said Dante;

"thick as leaves on Vallombrosa" said Milton. The American reading these passages immediately gets a picture of deep woods, and that to him means virgin woods, the kind Cooper describes in *The Deerslayer*--"Broad belts of virgin wilderness" where "centuries of summer suns had warmed the tops of the same noble oaks and pines, while the trunks of the trees rose in gloomy grandeur in the shades beneath."

It is something of a shock to find in the *Swiss Forestry Journal* for July the statement that Vallombrosa's total area of 1,414 hectares includes a fir plantation of 482 hectares "toute artificielle." According to the story each of the Benedictine monks at the hermitage there undertook to plant a certain number of white firs each year, and the present stand of fir is the fourth or fifth generation. The plantation is a wonderful success, although fir is not native to the region. In some places dense blocks of timber 100 years old total more than 1,000 cubic meters per hectare on the best quality sites.

This fir plantation "makes a strange somber spot in the midst of native hardwoods, treated as coppice, in poor condition and often injured by sheep grazing, the kind of forest characteristic of this part of the Appenines and above which rise here and there the spreading crowns of the maritime pine and the sharp spires of the cypress.

Vallombrosa is in Tuscany, about twenty-five kilometers east of Florence.

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Italy has just reorganized her forest protective force, substituting for the former Royal Forestry Corps a national forestry militia, subject to a strict discipline. The old force consisted of 225 technical officers, 40 assistants, and 2,240 guards; the new force, when fully recruited, is to have 336 technical officers and 5,200 subordinates and privates.

The total forest area of Italy is less than 14,000,000 acres.

Forest Cooperatives in Rumania  
By W. N. Sparhawk, U. S. Forest Service

Cooperative associations for the exploitation of forests have developed remarkably in Rumania since the war, and are now offering serious competition to the large lumber companies, most of which are controlled by foreign capital. The first cooperative was organized in 1905 by a group of mountain peasants who saw their local forests and opportunities for employment disappearing under the abusive exploitation practiced by the big corporations. By 1916 there were 221 cooperative associations with more than 12,000 members and approximately \$230,000 capital. There was little further expansion during the war, but the growth has been exceedingly rapid since 1920. By the end of 1923 there were 886 cooperatives with 80,000 members and invested capital of \$9,600,000.

There are several kinds of forest cooperatives. Some are organized merely for the purpose of getting out timber and fuel for the members and others for the purpose of operating small wood-using industries such as lath and stave mills; a third class cut timber for sale in the general market; others conduct lumbering operations and operate large sawmills or factories; and still others are organized for the primary purpose of afforesting denuded lands. In the beginning these associations worked on a very small scale. During the last few years, however, the tendency has been to organize larger units and to manufacture the wood into the final product instead of selling the logs or lumber.

In most cases these cooperatives are required to reforest the lands that they cut over. Several maintain nurseries, and others set aside a portion of the yearly profits for reforestation purposes. A maximum return of 15 per cent is allowed on the invested capital. At least 10 per cent of the net profit is put into a reserve fund and a portion of the remainder is divided among the workers, their share often amounting to half of the total profit. What is left over is used for philanthropic and public purposes. This form of organization has insured the cordial cooperation of capital and labor in spite of the difficult conditions resulting from the war. Its greatest value, however, is in changing the methods of forest exploitation. Nonresident (mostly foreign) lumber companies have operated in a very wasteful manner in Rumania, and few of them made any effort to perpetuate the forest. The cooperative associations, on the other hand, all of whose members are local citizens, have the greatest interest in maintaining the forest as a permanent source of production and of income. It is believed by some authorities that eventually these associations will almost entirely replace the large companies.

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### The Black Locust in Europe

(By Joseph S. Illick, in the Service Letter of the Pennsylvania Department of Forests and Waters)

Everywhere I go in Europe I see the black locust. Almost 150 years ago this American tree was introduced into Europe in large numbers. It was then heralded as the savior of the wood situation, which was thought to be approaching a famine stage. The wood famine has passed, but the black locust remains in large numbers; and it is being put to good use.

In hundreds of European cities black locust is used as an ornamental tree. Many streets are lined with it. It borders one of the main streets of Rome and grows even in the Vatican Grounds and within the historic Roman Forum. They call it "Robinia" and "Acacia." In Holland, Belgium, and France, also, I have seen it used extensively as an ornamental tree. Probably we have overlooked its real merits as an ornamental tree. To get the best results it must be pruned regularly.

One of the principal uses of black locust that I have observed is for the covering and holding of railroad embankments. It has been planted and is being propagated extensively along the French and Italian railroads, with great success. Between Rome and Florence are miles of railroad embankments protected by this tree. In southwestern France black locust wood is given first place for yokes and the hubs of cart wheels, which are manufactured in large numbers. The black locust is also a real friend of the vineyard manager. It produces durable posts and poles. Great quantities are used in the extensive vineyard regions of Italy and France.

Nowhere in Europe have I seen any evidence of the destructive work of the locust borer. This insect is apparently doing all its damage in America.

In spite of our handicap, we may be able to learn to handle this tree so as to take fuller advantage of its commercial and ornamental value.

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### Straw Hats from Wood (From Bois et Resineux)

A patent has just been taken out in Germany for the manufacture of hats from wood. The process is apparently very simple. A special machine cuts the wood into long, extremely fine strips. The strips are then dampened and thus rendered supple so that they can be bent and woven as easily as straw. A hat made in this way is lighter and cheaper than a straw hat, which it very much resembles at first glance.

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## Wood-burning Trucks and Tractors

Almost every French forestry paper or magazine that one looks into these days has a discussion of trucks or tractors driven by gas from wood or charcoal. The French automobile makers are turning out machines of this kind; and operation, endurance, and economy contests are being held among the different makes. It is said that there are some 3,000 such vehicles in operation in France today. The chief advantage sought in their use is economy of operation, and the claim is made that savings of 50 per cent in fuel cost have been realized in some cases. The illustrations of such trucks and tractors are not pretty; but even an American gasoline truck is hardly a thing of beauty.

The striking thing about all this is that it seems to be occupying so many minds in France, Italy, Austria, Belgium, and Switzerland, and yet one never hears of such a thing in America. What is the reason? To be sure we don't have to import gasoline and oil for our motors; but one would suppose that even the possibility of saving on operating expense would excite American operators of trucks to try out the wood-burning vehicle.

In these trucks the wood, usually in small pieces, is fed into an oven attached to the motor. The motor is a regular gasoline motor or at least a very similar kind of power plant operated by gas which is generated by the breaking down of the wood or charcoal in the oven.

Writing in Bois et Resineux on the question of the comparative advantages of wood, charcoal, and other fuels for road vehicles, J. Jager-smith, inspector of forests and waters of Loir and Cher, says "Everyone is in accord in saying today that a cheaper fuel [than gasoline] is needed for internal combustion motors. Some favor various liquid fuels, heavy oils or synthetic essences. Unhappily the heavy oil motor for trucks does not yet seem to be at the point where it is practical and the synthetic fuels are hardly out of the laboratory stage. The only practical fuel that has up to the present met the conditions in actual tests and given convincing proofs of its advantages is the gas from wood or charcoal."

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## Forest Fires in Belgium

The total of forest fires in Belgium in 1925, according to the Bulletin of the Central Forestry Association [of Belgium], was only 72, covering 129 hectares of timberland and causing 87,125 francs damage. Carelessness caused 22, railroads 20, incendiarism 1. In 34 cases the cause is unknown. The biggest fire covered 25 hectares and did 20,000 francs damage.

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## Corsican Pine a Thousand Years Old

(Extract from an article by H. Saliceti, Forest Inspector at Bastia, in *Revue des Eaux et Forêts*, May, 1926.)

"In its native island Corsican pine is extremely long lived. We know very large individuals--which, however, do not reach 2 meters in diameter--which are not 300 years old but 1,000 years. Trees 300 years old are rather common, since selection forests of Corsican pine are generally managed on a rotation of 360 years."

"An estimate of one old tree called "The King of Trees" in the forest of Valdoniello was made in the following fashion:

"We had the good fortune to find, a few meters away from the King of Trees, the trunk of a Corsican pine, 1 meter in diameter at a height of 1.30 meters, which had lived alongside the big tree under the same conditions. The enumeration of the annual rings occupied three or four hours of minute observation and gave a result of 507 rings; the rings were so narrow that it took no less than 20 to cover a centimeter. It is therefore no exaggeration to estimate that the King of Trees took about 500 years to attain, like its neighbor, the diameter of 1 meter and that it needed another 500 years to grow from 1 meter to its actual diameter of 1.80 meters." .....

"Corsican pine is in its normal place in Corsica between 1,000 and 1,300 meters altitude....There it forms fine selection forests, pure, and without underwood, and consequently much less exposed to fire than the forests of maritime pine at lower elevations."

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## Canadian Forestry Association on the Warpath against Fire

Seven lecturing expeditions in all parts of the Dominion, fortnightly lectures in 10,000 schools, a new forest protection magazine in French for the French population, are some of the activities of the Canadian Forestry Association this year reported in the July number of the association's organ, the *Illustrated Canadian Forest and Outdoors*. Some of these expeditions report audiences of 300 to 500 people nightly. In the movie shows the forest fire propaganda reels are sweetened by scenic and comic reels. The talks are aimed at reducing the fires caused chiefly by campers and smokers, and at stirring up the settlers in forested regions to a realization of how much they are personally interested in seeing that fire is kept out of the woods. The western lecture car of the association is reported to have finished out 50,000 miles of travel.

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### Reforestation in Norfolk County, Ontario

Three hundred and ten landowners of Norfolk County, Ontario, called at the government nurseries at St. Williams this spring for planting stock. Practically every one took the full quota of 3,500 trees, so that the total distribution was more than 900,000. The county itself plants 100 acres each year. Interest in reforestation is bringing outside money into the county for the purchase of cheap nonproductive land suitable for tree planting, such purchases in the first half of the year 1926 totaling well over 3,000 acres. Land in the county which was bought in 1923 for \$3 an acre and planted with pine, this year brought an offer of \$20 an acre.

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### New Products Laboratory for McGill

Members of the Canadian Pulp and Paper Association have pledged \$201,500 toward the erection of new forest products laboratories at McGill University, and expect to raise a total of \$350,000. The projected building will house the research activities of the pulp and paper association, and of the division of pulp and paper of the university's forest products laboratory.

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### New Forest Nursery in Nova Scotia

The government of Nova Scotia has appropriated \$1,500 to establish a forest nursery at Lawrencetown, Annapolis County. This nursery will start with a large stock of transplants; for Frank J. D. Barnjum has presented for this purpose about one million seedlings of Norway spruce, white spruce, Sitka spruce, Norway pine, white pine, and Sitka pine grown from seed which he planted at Annapolis Royal about two years ago. Captain A. M. O. Gold has been put in charge of the nursery.

The nursery is expected to have a yearly output of a million trees, and applications are already being received.

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## PERSONALS

R. B. Miller has been appointed chief forester of Illinois. Mr. Miller has for some time been connected with the Natural History Survey of Illinois, which through investigations covering a period of seven years has laid the foundation for forestry work in the State.

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The new California Forest Experiment Station is to be headed by Edward I. Kotok. Mr. Kotok has served in the California National Forest District since 1911, first as forest assistant on the Shasta, then as supervisor of the Eldorado, and for the last seven years as fire-control inspector for the district. He will be assisted by Duncan Dunning, associate silviculturist of the California district office, who has been engaged since 1915 in research work in California, primarily in growth studies. Other members of the staff will be A. E. Wieslander, formerly employed as forester in the Indian Service and now in charge of timber sales on the Lassen, and Howard W. Siggins, a graduate of the Pennsylvania State School of Forestry appointed from this year's junior forester register. Dagmar H. Vinther, of the California district office, will serve as executive assistant.

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Dr. C. A. Schenck of Darmstadt, Germany, plans to return to the United States this winter to give lectures at the New York State College of Forestry, the Pennsylvania State Forest School, and the University of Montana.

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Tor Jonson, director of the Swedish Forest Experiment Station and head of the National Forest School of Sweden, is now touring the United States, visiting forest schools, experiment stations, and laboratories, and the national forests. Mr. Jonson is developing a forestry dictionary in English and Swedish, with the cooperation of the U. S. Forest Service. He is accompanied by F. Johannasson of the National Forest School of Sweden.

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Dr. J. von Monroy of Saxony is concluding an extended tour of the forest regions of the United States. He plans to return to Germany by way of Japan, India, Italy, and France and to reach home about the first of March.

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H. G. Mitchell, a graduate of the University of Michigan formerly employed by the Great Southern Lumber Co., has been named extension forester of Mississippi.

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E. G. Wiesehuegel has resigned as assistant supervisor of the Uinta National Forest, Utah, to become professor of forestry, specializing in silviculture, at the University of Idaho.

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R. W. Hayes is the newly appointed assistant to Prof. G. D. Maxakworth of the Forest School of the University of Louisiana. Mr. Hayes is a graduate of the Forest School of the University of Iowa. He has been connected with the Indian Service and has served on the faculty of Colorado Agricultural College.

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W. D. Tyler of Dante, Va., and E. H. Frothingham of the Appalachian Forest Experiment Station were reelected president and secretary, respectively, of the Appalachian Forest Research Council at its meeting in Asheville August 6 and 7. Joseph Hyde Pratt of Biltmore was made chairman of the executive committee.

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Members recently appointed to the Southern Forest Research Council for a period of three years are the following: W. R. Hine, State forester of Louisiana; L. W. Baldwin, president of the Missouri-Pacific Railroad; George T. Houston, president of the Houston Lumber Co., Memphis; J. W. Tucker, of the Everglades Cypress Co.; A. Trieschmann, of the Crossett Lumber Co.; and J. N. Harper, director of the Agricultural Bureau of the French Potash Society, Atlanta.

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Alfred Akerman of Cartersville, Ga., who for several years has been assistant State forester of Virginia, has been chosen by the Georgia State Board of Forestry to head the new Georgia department of forest management. The board at the same time appointed E. W. Hadley of Chipley, Ga., assistant silviculturist of the Southern Forest Experiment Station, as chief of the department of forest protection.



Alfred E. Aldous, who some years ago left the office of grazing studies of the U. S. Forest Service to take charge of the 640-acre home-stead work in the Interior Department, has been appointed pasture specialist at Kansas State Agricultural College.

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S. T. Dana, director of the Northeastern Forest Experiment Station, returned to the United States on August 16 after spending several months abroad. After attending the Rome conference he visited a number of forest experiment stations in eastern Europe, observing their work and especially their methods of developing and training men for research.

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Alexander Koroleff has reported for duty as assistant forest utilization engineer at the district office of the U. S. Forest Service, Portland, Oreg. Mr. Koroleff was graduated from the Imperial Forest Institute of Russia in 1913 with an advanced degree. After a period of service in the Siberian Forest Service he was sent to this country to study wood utilization methods. He has since had practical experience in logging and lumbering operations in the Douglas fir region, taken the M. F. degree at the University of Washington, and done two years' research work in the Yale Forest School. During the past year he served as an instructor in the School of Forestry of the University of Minnesota and conducted a utilization study at the Lake States Forest Experiment Station.

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Arnold C. Shaw, assistant in the office of forest management of the Eastern National Forest District, has resigned to become field secretary of Smoky Mountain National Park, Inc., of North Carolina. Mr. Shaw's new work will involve the examination, valuation, and purchase of land in North Carolina for the proposed Smoky Mountain National Park.

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Prof. Arthur F. Fischer, head of the Philippine Forest School, this summer returned to the United States as he does every five years. He presented the U. S. Forest Service with a very interesting photographic collection and a number of manuscripts. After an extended vacation ending with a rest at La Jolla, Calif., he plans to return to the Philippines very late in the fall or in the early winter.

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H. H. Knowles has resigned as blister rust control agent in Fulton and Hamilton Counties, N. Y., to become secretary of the Vermont Forestry Association. George E. Stevens, blister rust control agent in Lewis, Oneida, St. Lawrence, and Jefferson Counties, N. Y., has been made assistant State leader in this work. His former post is being taken by Stanley Hamilton, a graduate of the University of New Hampshire and of the Yale Forest School.

Harold P. Sheldon, formerly State fish and game commissioner of Vermont, has taken office as chief United States game warden. Before his appointment as State game commissioner Mr. Sheldon was an assistant editor of the Office of Information of the U. S. Department of Agriculture.

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Dr. F. Comte, of Yverdon, Switzerland, who attended the International Congress of Plant Sciences at Ithaca as a forestry delegate, later joined members of the ecological section in their excursion to the Yellowstone, and before leaving this country will visit the forest experiment stations in the northern Rocky Mountains and Colorado.

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Henry Weisheit has been employed as full-time field secretary by the North Carolina Forestry Association. At its recent annual meeting the association reelected Joseph Hyde Pratt president and W. J. Dantoft secretary-treasurer.

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Mrs. M. C. Turner of Dallas, Texas, has recently been appointed national chairman of conservation of the Daughters of the American Revolution, succeeding Mrs. F. E. Frisbee of Sheldon, Iowa.

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Mrs. Francis E. Whitley of Webster City, Iowa, who has been chairman of forestry for the General Federation of Women's Clubs for the past four years, has agreed to serve an additional two years.

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Chas. M. Genaux, a graduate of the Pennsylvania State Forest School, has been placed in charge of the forest nursery from which the State College of Washington is now distributing trees to farmers under a Clarke-McNary agreement.

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Ferdinand W. Haasis, assistant silviculturist of the Appalachian Forest Experiment Station, will be on leave during the coming school year, which he intends to devote to graduate study at Johns Hopkins University. His work there, which will be credited toward the Ph. D. degree, will be a study of water and growth relations of forest reproduction. L. F. Kellogg of the Appalachian station has applied for leave of absence in order to attend the Yale Forest School for an additional year.

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## BIBLIOGRAPHY

### Cooperative Extension Work Reviewed

The Office of Cooperative Extension Work of the Department of Agriculture has just issued a 131-page pamphlet reviewing the work during the years 1915-1924 inclusive. The development of the work under the Smith-Lever Act, the methods used, and the results attained are covered in considerable detail. Extension methods, club work, demonstration work, and county agent work are given special attention. Statistical summaries of results and expenditures for 1924 are included. The pamphlet is entitled "Cooperative Extension Work 1924 with 10-Year Review." Copies may be obtained by writing to the Department of Agriculture, Washington, D. C.

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### Helping to Find a Place for Short-Length Lumber

A most timely publication is Department Circular 393 of the Department of Agriculture, entitled "Industrial Outlets for Short-Length Softwood Yard Lumber." In it are set forth the results of a study of the utilization of short lengths recently made by the Forest Products Laboratory, in response to requests from the lumber trade. The building trades were found by the laboratory's investigators to be incapable of absorbing the available quantity of short-length lumber, though they offer the largest single outlet for short lengths. The industries could consume three times as much of this material as at present. Short lengths sold to the industries as ready-cut stock bring a price more on a parity with the price of long lengths that do short lengths sold for building construction.

This booklet can now be obtained free from the Department of Agriculture, Washington, D. C., and from the Forest Products Laboratory, Madison, Wis. It will be sold by the Superintendent of Public Documents, Washington, D. C., at 10 cents a copy.

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### Laboratory Prepares New Tables of Working Stresses

Working stresses for American Lumber Standards grades of select and common have been prepared by the Forest Products Laboratory, and are now ready for distribution in table and chart form. Three tables and a chart furnish complete stresses for all species commonly used in structural work. Copies may be obtained on request from the Forest Products Laboratory, Madison, Wis.

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## How to Use Range Water Supplies in the Southwest

How water supplies should be conserved and distributed on the stock ranges of Arizona and New Mexico is discussed in a new publication of the Forest Service, "Range Watering Places in the Southwest." The bulletin is based on three years' study of the water requirements of range animals and of the use of more than 200 reservoirs, 50 wells, and numerous water developments of other types in the two States. It tells at what distance from each other permanent watering places may be located in range lands of different types without danger of overgrazing immediately around the waters and incomplete utilization of forage in intervening areas. Recommendations are made as to where and how reservoirs and wells should be established for watering stock, with information as to construction costs.

Copies of this bulletin, which is listed as Department Bulletin 1358, may now be obtained without charge from the Department of Agriculture, Washington, D. C. When the free supply has been exhausted they can be purchased from the Superintendent of <sup>Public</sup> Documents, Washington, D. C., at 15 cents apiece.

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## Search for Blight-Resistant Chestnut

The search carried on by explorers of the Department of Agriculture for species of chestnut that will resist the blight is described in a new 16-page publication issued by the Office of Foreign Plant Introduction of the department, Department Circular 383. The circular describes 11 species of chestnuts and chinquapins and gives some account of their characteristics and the efforts made to establish them in America. An interesting account is given of the collection and importation of the Chinese hairy chestnut. More than 25 importations of this chestnut have been made, according to the records of the Office of Foreign Plant Introduction. In 1927, the circular states, the office "will be in position to supply limited numbers of young Castanea mollissima (Chinese hairy chestnut) trees for experimental orchard planting in regions east of the Allegheny Mountains where blight occurs. Trees cannot be sent outside of the regions indicated on account of the danger of spreading blight. It is planned to limit plantings to about one acre in each locality."

Copies of this circular may be obtained by writing to the Department of Agriculture, Washington, D. C.

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## Salt in Range Management

"The Use of Salt in Range Management," a recent publication of the Forest Service written by W. R. Chapline and M. W. Talbot, brings together the results of experimental work and of careful observation of salting practices current on the western stock ranges. The authors discuss the proper allowances of salt for different animals; considerations affecting the choice of kinds and grades of salt; the desirability of different types of containers, and the methods of constructing them; and the control through salting systems of the movements of animals over the range. The information is applicable to practically all western ranges.

This publication, listed as Department Circular 379-D, is now available for free distribution and may be obtained by application to the Department of Agriculture, Washington, D. C. Later supplies will be sold by the Superintendent of <sup>Public</sup> Documents, Washington, D. C., at 10 cents a copy.

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## Roadside Trees for Connecticut

A booklet on "Highway Trees and Roadside Improvement for Connecticut" has been published by the Connecticut Forestry Association, as an outgrowth of the Shade Tree Conference held by the association and the Yale Forest School in February, 1926. It briefly discusses the practical and legal considerations involved in establishing and caring for roadside tree plantings in the State. General suggestions are offered as to choice of tree species for planting and as to the grouping of trees according to landscape conditions and engineering requirements, and a special plea is made for the provision of small roadside camping grounds. The 32 pages of the bulletin include a series of well-chosen illustrations.

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## An Aggressive Tree Immigrant

The ailanthus tree, brought to Philadelphia as an ornamental in 1784, has spread with such aggressiveness in Pennsylvania that it has become a problem for the forester. According to a recent bulletin of the Pennsylvania Department of Forests and Waters, "The Ailanthus Tree in Pennsylvania," by J. S. Illick and E. F. Brouse, "the ailanthus situation in Pennsylvania is serious. It is the only introduced tree that is competing vigorously with our native tree growth, and in this competition it appears to have a marked advantage. Unless a use is found for its wood, this tree will develop into a worthless forest weed and become a forest nuisance of the first magnitude."

By its vigorous sprouting and free seeding, the tree is spreading rapidly in the State and has got away from the streets and lawns and invaded vacant lands on farms and in many places has pushed its way into the forest. The publication lists a number of pure or almost pure stands of ailanthus. Apparently it is a hard fighter and makes itself at home in all kinds of difficult places. "With apparent grace it accepts the hard fate of growing in crevices of brick walls, in back alleys, among paving stones, on slag piles, about refuse dumps, among rocks, on barren wastes, and in other unfavorable situations. There is no soil so thin, no site so sterile, no spot so scorched, no space so limited that the ailanthus will not attempt to grow thereon, and often to our amazement, it grows freely where other trees falter and fail."

Cooperative investigation by the Pennsylvania Department of Forests and Waters and the Forest Products Laboratory at Madison indicate that the wood of ailanthus may be found suitable for the manufacture of pulp and paper. If it proves to be suitable and commercially usable for pulp the ailanthus may turn out to be a valuable tree instead of a forest problem. At any rate the story of the spread of ailanthus in Pennsylvania is mighty interesting reading.

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Recent Books and Pamphlets

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- American Tree Association: Forestry legislation survey for 1926. 50 pp. Washington, D. C., 1926.
- Cajander, A. K.: The theory of forest types. 108 pp. diagr. Finnish Literary Society. Helsinki, 1926.
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- Hawley, R. C., and Wheaton, R. G.: Studies of Connecticut hardwoods: the form of hardwoods and volume tables on a form quotient basis. 41 pp. diagrs., tables. (Yale Forest School bulletin no. 17.) New Haven, Conn., 1926.
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- Meek, C. R.: How to prevent forest fires. 32 pp. illus., maps. (Pennsylvania Department of Forests and Waters bulletin 40.) Harrisburg, Pa., 1926.
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#### Articles in Periodicals

- American Architect, July 20, 1926.-- Development of American lumber standards, by E. M. Davis, pp. 67-72.
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- Economic Geography, July, 1926.--The forest resources of Canada, by R.D. Craig, pp. 394-413.

- Journal of Forestry, May, 1926.-- Some notes on the present timber situation, by F. S. Baker, pp. 477-483; Present problems in forest education, by H. Winkenwerder, pp. 484-492; The future disposition of our remaining public lands, by H. H. Chapman, pp. 493-499; The future of forest lands in Montana and Idaho, by E. Koch, pp. 518-532.
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Miscellaneous Publications of the Forest Service

The Story of the Range, by Will C. Barnes.

National Forest Map Folders: Cabinet, Cascade, Deerlodge, Nantahala.

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